

PATENT COOPERATION TREATY

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REC'D 20 MAY 2005

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference M/43038-PCT	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/EP2004/003873	International filing date (day/month/year) 13.04.2004	Priority date (day/month/year) 14.04.2003
International Patent Classification (IPC) or national classification and IPC A01N33/18, A01N25/28, A01N25/30		
Applicant BASF AKTIENGESELLSCHAFT et al.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 2 sheets, as follows:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application 		
Date of submission of the demand 11.02.2005	Date of completion of this report 19.05.2005	
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Molina de Alba, J Telephone No. +49 89 2399-7823	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/003873

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-11 as originally filed

Claims, Numbers

1-14 received on 12.02.2005 with letter of 11.02.2005

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/003873

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-14
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-14
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-14
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application.

The following defects in the form or contents of the international application have been noted:

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP2004/003873

1) The following documents (**D**) are referred to in this communication:

D1: EP-A-0 747 116 (AMERICAN CYANAMID CO) 11 December 1996 (1996-12-11)
D2: EP-A-0 823 993 (AMERICAN CYANAMID CO) 18 February 1998 (1998-02-18)

2) The present application relates to aqueous and flowable concentrate compositions of pendimethalin having good storage stability and which do not show a slowed release of the active ingredient. The compositions contain: i. particles of microencapsulated pendimethalin; ii. particles of non-encapsulated pendimethalin; and iii. at least one surface-active substance.

3) **Re Item V**

3.1 Novelty (Article 33(2) PCT)

Document **D1** discloses (cf. pg. 2, l. 15-19 and examples 1, 2, and 4) a process for the preparation of microcapsule compositions which have high concentrations of active ingredients, do not readily crystallize and may be prepared using a variety of emulsifiers. Additionally, the compositions present a rapid release of the active agent. The described concentrates are illustrated on tables I-III, wherein the active ingredient is in most of the cases pendimethalin. The compositions of **D1** contain an amount of non-encapsulated material as low as possible, so that the potential for crystal growth is greatly reduced or eliminated. Thus, **D1** does not describe a composition wherein the ratio of microencapsulated pendimethalin to non-encapsulated pendimethalin is between 1:9 and 9:1. The presently claimed subject-matter is therefore novel.

3.2 Inventive step (Article 33(3) PCT)

D1 and **D2**, are considered to represent the closest state of the art. These documents disclose (cf. **D1**, pg. 2, l. 15-19 and examples 1, 2, 4; **D2**, pg. 2, l. 24-27 and examples 1-11) **stable pendimethalin concentrates**, wherein pendimethalin is encapsulated in **rapid-release microcapsules**.

The subject-matter of the present application differs from **D1** and **D2** at least in that the active ingredient is not nearly only present in the microcapsule form, but it exists as a mixture of

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP2004/003873

microencapsulated and non-encapsulated pendimethalin in a ratio from 1:9 to 9:1. The problem to be solved by the present application may therefore be regarded as providing alternative pendimethalin concentrate formulations showing good stability, which do not exhibit a slowed release of the active ingredient.

In view of **D1** and **D2** and particularly in view of the passage of **D1** on pg. 2, l. 52-54, it would not be obvious for the skilled person, that a mixture containing microencapsulated and non-encapsulated pendimethalin in the given weight ratios still show a comparable storage stability. Therefore, the subject-matter of claims 1-14 is regarded as inventive.

3.3 Industrial applicability (Article 33(4) PCT)

Is acknowledged for the whole set of claims.

4) Re Item VII

On pg. 2, l. 42-43 it is stated that "full reference is made" to the documents US5705174 and US5910314. These documents do not appear to be essential for the performance of the invention (PCT Guidelines ISPE 4.26, Art. 5 PCT).

The document **D2** should be identified in the description and the relevant background art disclosed therein should be briefly discussed (Article 5 PCT).

Claims:

1. A flowable, aqueous concentrate composition containing

5 i. particles a) of microencapsulated pendimethalin,
ii. particles b) of non-encapsulated pendimethalin and
iii. at least one surface-active substance.

10 wherein the weight ratio of the microencapsulated pendimethalin particles to non-
encapsulated pendimethalin particles is from 1:9 to 9:1.

15 2. The composition as claimed in claim 1, wherein the microencapsulated pendimethalin is encapsulated by a polymeric wall material which is selected from polyurea and polyurethanes.

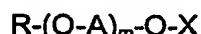
20 15 3. The composition as claimed in any of the preceding claims, wherein the microencapsulated pendimethalin particles are encapsulated by a polymeric wall material in an amount of from 0.5 to 20 % by weight, based on the amount of pendimethalin in said particles.

25 20 4. The composition as claimed in any of the preceding claims, wherein the concentration of pendimethalin is from 200 to 600 g/l.

30 25 5. The composition as claimed in any of the preceding claims which contains at least one surface-active substance A which is an anionic oligomer or polymer, which contains a plurality of anionic groups.

35 30 6. The composition as claimed in claim 5, wherein the anionic oligomer or polymer is selected from oxidized alkali-lignin, lignosulfonates, ligninsulfates, and the salts of arylsulfonic acid formaldehyde condensates and of arylsulfonic acid formaldehyde urea condensates.

40 35 7. The composition as claimed in any of the preceding claims which contains at least one anionic surface-active compound of the formula I



wherein

R is a hydrocarbon radical having from 8 to 40 carbon atoms and optionally one oxygen atom,

A is 1,2-ethylene, 1,2-propylene or 1,3-propylene,

m is from 3 to 200 and

X is SO_3M or PO_3M_2 with M being selected from H, alkaline metals, alkaline earth metals and ammonium.

45 40 8. The composition as claimed in any of the preceding claims which contains at least one neutral surface-active compound of the formula II

$$\text{R}'-(\text{O-B})_n-\text{OH}$$

wherein

R' is a hydrocarbon radical having from 8 to 40 carbon atoms and optionally one oxygen atom,
B is 1,2-ethylene, 1,2-propylene or 1,3-propylene and
n is from 5 to 200.

- 5 9. The composition as claimed in any of the preceding claims, wherein the total amount of surface-active substance is from 1 to 50 % by weight, based on the pendimethalin in the composition.
- 10 10. The composition as claimed in any of the preceding claims which contains an inorganic water-soluble salt in an amount of from 10 to 200 g/l.
- 15 11. The composition as claimed in claim 10 which contains
 - i. 50 to 500 g/l of pendimethalin as microencapsulated pendimethalin particles a),
 - ii. 50 to 500 g/l of non-encapsulated pendimethalin particles b),
 - iii. 5 to 100 g/l of at least one anionic oligomeric or polymeric surface-active substance A as defined in claim 6,
 - iv. 5 to 200 g/l of at least one anionic surface-active compound of the formula I as defined in claim 8,
 - v. 5 to 50 g/l of at least one nonionic surface-active compound of the formula II as defined in claim 9, and
 - vi. 20 to 200 g/l of at least one water-soluble inorganic salt.
- 20 12. A method for preparing a composition as claimed in any of the preceding claims which comprises mixing of a first free flowable, aqueous composition containing particles of microencapsulated pendimethalin in a concentration of from 200 to 600 g/l with a second free flowable aqueous composition containing 200 to 600 g/l of non-encapsulated particles of pendimethalin.
- 25 13. The use of a composition as claimed in any of claims 1 to 11 for controlling undesired vegetation.
- 30 14. A method for controlling undesired vegetation, which comprises applying an aqueous tank-mix, which is obtained by diluting a composition as claimed in any of claims 1 to 11 with water, before, during and/or after the emergence of undesired plants.